



## WHERE ARE THE WORKERS? THE AEC WORKER SHORTAGE

If you ask the heads of most architectural and engineering firms what their most significant challenge is—the almost unanimous answer will be ‘staffing.’ However, understanding that answer takes a little more insight.

To begin with, the Bureau of Labor Statistics (BLS) projects that the field of Engineering will experience roughly 130,000 new jobs added through 2026. The BLS also estimates that about 9,400 openings for architects are anticipated each year, on average, over the next decade. Most of those expected openings result from the need to replace workers who transfer to different occupations or retire.

Where will we find these engineers and architects? According to data from the National Center for Education Statistics (NCES), U.S. colleges and universities award an average of 2 million bachelor’s degrees each year. However, more than half of those degrees were in just five fields of study—Business with 386,000 (19%), Health Professions at 245,000 (12%), Social Sciences and History at 160,000 (8%), and Engineering at 122,000 (6%).

Like doctors who specialize in various types of medicine, the engineering category is broad. It covers nine sub-categories, of which four choices are civil, mechanical, electrical, and architectural. However, most students are not interested in working on infrastructure projects like roads, bridges, sewer, and water. Instead, industries like aerospace, computers, artificial intelligence, and robotics attract them with the allure of money, glamor, and advancement opportunities. The U.S. News & World Report has a list of the Best Undergraduate Civil Engineering Programs.

The median salary for both architects and civil engineers is around \$80,000, which is not bad until you consider that both professions



are responsible for the life and safety of the masses. Therefore, the liability of their work is very high.

At one time, architecture and engineering professions were very stable and provided security for future employment. However, during the 2008 housing crash and the resulting economic recession over four years, A & E firms dramatically downsized, and nearly 70% of the professionals found themselves unemployed. Of those that lost jobs, many took early retirement or changed careers. Those that could find other architecture and engineering jobs took dramatic pay cuts, and many uprooted their families from their long-time homes and moved across the county to find work. Even after 2012, when construction started coming back, A & E firms remained cautious, not eager to grow to the size they were before the recession, and employment for architects and engineers have been slow to come back. Currently, around 54,625 civil/structural engineers and 162,800 architects are employed in the United States. Remember that the term ‘architect’ is also broad, and 79% work in industries other than design-build.

Putting even more pressure on the industry is the Baby Boomer retirement factor. In the third quarter of 2020, about 28.6 million Baby

Boomers – those born between 1946 and 1964 – reported being retired. Additionally, this is 3.2 million more Boomers than the 25.4 million who were retired in the same quarter of 2019.

### Where to find job applicants?

It is clear from the numbers that colleges and universities in the U.S. cannot produce enough architectural and engineering graduates to fill the future needs. So, large American firms are looking for employment candidates from countries like India, Japan, Korea, China, and Germany. They produce more than five times the number of engineering graduates than the U.S. These countries also have rigorous STEM education programs starting in elementary grades and produce highly educated engineers and architects. However, hiring foreign engineers is not an easy task, and some firms have HR individuals specializing in wading through the government red tape. The Institution of Civil Engineers has put together a brief guide to help answer the basic questions. In addition, you can also find a guide on the types of work authorizations for specialty occupations online at the U.S. Department of Labor.

Regardless of their education, college graduates entering the workforce need a minimum of two years of mentoring before handling projects on their own. Unfortunately, as Boomers retire and take their guidance and knowledge base with them, mentoring has taken a back seat to on-the-fly training.

The recent passage of the federal government’s trillion-dollar infrastructure bill and the White-house’s American Jobs Plan have spotlighted the need for more architects, engineers, and construction workers. However, how that will influence college students’ decisions and the job market is yet to be seen.